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SELECTION OF FAVORITE CHANNELS

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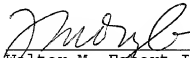
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UV-100

APPARATUS AND METHOD FOR  
CONSTRAINED SELECTION OF FAVORITE CHANNELS

This application claims the benefit of U.S.  
5 Provisional application Serial No. 60/097,507 filed  
August 21, 1998.

Background of the Invention

This invention relates to interactive program  
guide systems, and more particularly, to program guide  
10 systems that provide users with channels from a  
plurality of media such as television, audio, video-on-  
demand, data, or games, and in which user's access to  
the programming or program listings may be constrained  
to a preferred single medium or subset of the available  
15 media.

Cable, satellite and broadcast systems  
provide users with a large number of television  
channels. Moreover, these systems are able provide  
channels in other media, such as digital audio (e.g.,  
20 DMX) channels, video-on-demand channels, game channels,  
and data channels. Users have traditionally consulted  
printed program schedules to determine the programs  
being broadcast at a particular time. More recently,  
interactive electronic program guides have been

developed that allow program information to be displayed on a user's television, for example.

Interactive program guides are typically implemented on set-top boxes. Such program guides  
5 allow users to view program listings in different display formats. For example, a user may instruct the program guide to display a grid or table of program listings organized in a channel-ordered or a time-ordered list. Users may also search and sort program  
10 listings by genre (e.g., movies, sports, etc.) or by title (i.e., alphabetically). A user may obtain additional information for a program by placing a highlight region on a desired program listing and pressing an "info" button. The user may purchase a pay  
15 program from the program guide by placing the highlight region on a program listing and pressing an "OK" button. Some systems allow the user to select a program for recording by placing the highlight region on a program listing and pressing a "record" button.

20 One approach to dealing with the channel navigation problems created by the increasing large number of television channels is described in Michael D. Ellis et al. U.S. patent application 09/034,934, entitled PROGRAM GUIDE SYSTEM WITH PREFERENCE PROFILES,  
25 filed on March 4, 1998, which is incorporated by reference herein.

Because there are so many communication channels available, particularly with cable and satellite systems, program guides have been developed  
30 that allow users to select favorite channels. During tuning, the program guide may allow the user to tune to favorite channels only, while skipping other channels.

Alternatively, a display screen containing program listings may be organized in a way that reflects which channels are favorites. For example, a table of program listings may contain only favorite channels and  
5 other channels may be suppressed from view. According to another approach, program listings for available channels are displayed. However, when the user scans through the table of program listings, the cursor control, which highlights a program and allows the user  
10 to make a selection, will advance among the favorite channels and skip over the other channels.

The increasing number of new channels has not been limited to television channels. Cable and satellite systems in particular are being used to carry  
15 channels relating to various types of media. These newer types of media, such as digital audio, video-on-demand, game and data channels, are typically treated identically to television channels. Thus, no distinction is made by typical prior art program guide  
20 when the user selects an audio channel as a favorite as opposed to a television channel, for example. A program guide feature, such as a "flip" feature that allows the user to tune to favorite channels, may arbitrarily access both audio and television channels  
25 in a random sequence when the user may only be interested in selecting a television channel at that time, and have no interest in the audio channels. In addition, the random sequence of audio and video programming may be confusing to the user. Similarly, if  
30 the user consults the program guide to display a list of favorite television programming, the program guide may display both television programming as well as

audio programming. The user is thus required to view program listings which are of no immediate interest and which may make the program selection process more tedious.

5           Thus, what is needed is a sophisticated way in which the program guide may organize and access favorite channels relating to a plurality of different media, in order to provide programming responsive to the user's interests.

10           It is therefore an object of the invention to provide a program guide system with increased capability to discriminate among favorite channels relating to a plurality of different media.

#### Summary of the Invention

15           These and other objects of the invention are accomplished in accordance with the principles of the present invention by providing an interactive program guide system implemented on user multi-media equipment which allows the user to select favorite channels, but  
20           which treats favorite channels from different media separately.

          The user may be provided with the option to select a favorite channel of any of the available media, which is added to a favorite channels list. The  
25           media type of the selected channel, such as television or audio, is also associated with each favorite channel on the favorite channels list. When using the program guide, the user may then be constrained to access only favorite channels of a single medium. Access to  
30           favorite channels may be constrained to a preferred

medium, such as the medium of the current channel selection.

The program guide may constrain tuning and/or display to one of a plurality of possible media types.

- 5 A media type may consist of a single medium, such as television channels. Alternatively, the media type may consist of a plurality, i.e., a subset, of the available media, e.g., television and video-on-demand channels only. Consequently, the user would be
- 10 constrained to first media favorite channels (e.g., favorite television channels) and second media favorite channels (e.g., favorite video-on-demand channels) when in the particular media type subset.

- The user may be provided with the option of
- 15 displaying favorite channels in a by-time display format option in which the list of favorite programming is displayed from a selected medium only.

- In a preferred embodiment, the user may be provided with the option to use a "flip" feature that
- 20 tunes the user's television only to favorite channels of the selected medium. Channels having content of other types of media would be skipped.

- The user may be provided with the option to use a "browse" feature that accesses only to favorite
- 25 channels of the selected medium.

Further features of the invention, its nature and various advantages will be more apparent from the accompanying drawings and the following detailed description of the preferred embodiments.

Brief Description of the Drawings

FIG. 1 is a diagram of a system in which an interactive program guide is implemented in accordance with the present invention.

5           FIG. 2 is a flow chart of steps involved in assigning media type information to channels, designating preferred media types, and providing the user with the option of selecting favorite channels of the preferred media type in accordance with the present  
10 invention.

FIGS. 3(a)-3(b) are illustrative channel information data in accordance with the present invention.

15           FIG. 4 is an illustrative interactive program guide display screen for displaying and selecting favorite channels in accordance with the present invention.

20           FIG. 5 is an illustrative display screen for displaying favorite channels in accordance with the present invention.

FIG. 6 is a flow chart of steps involved in designating the preferred media type in accordance with the present invention.

25           FIG. 7 is a flow chart of steps involved in choosing a channel selection option in accordance with the present invention.

30           FIG. 8 is an illustrative program listings display for displaying program listings of favorite channel of the preferred media type in accordance with the present invention.

FIG. 9 is a flow chart of steps involved in selecting channels to display in display screen of



FIG. 8 in accordance with the present invention.

FIG. 10 is an illustrative program listings display for displaying program listings with a constrained scrolling in accordance with the present invention.

FIG. 11 is a flow chart of steps involved in scrolling to available channels for the display screen of FIG. 10 in accordance with the present invention.

FIG. 12 is a diagram of an illustrative flip feature for the program guide in accordance with the present invention.

FIG. 13 is a flow chart of steps involved in selecting channels to tune in connection with the flip feature of FIG. 12 in accordance with the present invention.

FIG. 14 is a diagram of an illustrative browse feature for the program guide in accordance with the present invention.

FIG. 15 is a flow chart of steps involved in selecting channels to display on a browse display feature of FIG. 14 in accordance with the present invention.

FIG. 16 is an illustrative interactive program guide display screen for selecting and displaying preference profiles in accordance with the present invention.

Detailed Description of the Preferred Embodiments

An illustrative program guide system 30 in accordance with the present invention is shown in FIG. 1. Main facility 32 contains a program guide database 34 for storing program guide information such as program guide listings data, pay-per-view ordering information, program promotional information, channel media type for each channel, etc. Information from database 34 may be transmitted to multiple distribution facilities such as communication facility 36 via communications links such as communications link 38. Only one communication facility 36 is shown in FIG. 1 to avoid overcomplicating the drawings. Each link 38 may be a satellite link, a telephone network link, a cable or fiber optic link, a microwave link, a combination of such links, or any other suitable communications path. If it is desired to transmit video signals over link 38 in addition to data signals, a relatively high bandwidth link such as a satellite link is generally preferable to a relatively low bandwidth link such as a telephone line.

Communication facility 36 is a facility for providing either a one-way (i.e., broadcast) or two-way communications connection between the main facility and users. Communication facility 36 could include, for example, an asynchronous transfer mode ("ATM") switch, a cable system head end, a broadcast distribution facility, or a satellite distribution facility.

The program guide information transmitted by main facility 32 to communication facility 36 includes program listings data for current and future programs. The program listings data for each program preferably

includes the title of the program, the channel for the program, a scheduled broadcast time (start time) and an ending time (or duration). Other typical program listings data include ratings, critics ratings, descriptions, genres (sports, movies, children, etc.), actors, etc. Transmitted program information may also include advertising information and pay program data such as pricing information for individual programs and subscription channels, time windows for ordering programs and channels, telephone numbers for placing orders that cannot be impulse ordered, etc.

Communication facility 36 distributes programming and program guide information to the user equipment 40 of multiple users via communications paths 42. Various techniques may be used to distribute television programming and program guide information. For example, video and audio programming may be distributed over analog and digital television channels and digital audio channels while program guide data may be distributed over in-band or out-of-band channels on paths 42. Data, game, and other channels may also be distributed using one or more uni-directional or bi-directional digital channels on paths 42. Such digital channels may also be used for distributing television programming and other information. Multiple television and audio channels (analog, digital, or both analog and digital) may be provided to set-top boxes 44 via communications paths 42. If desired, program listings and other information may be distributed by one or more communication facilities that are similar to but separate from communication facility 36 using

communications paths that are separate from communications paths 42.

Certain functions such as pay program purchasing may require set-top boxes 44 to transmit  
5 data to communication facility 36 over communications paths 42. If desired, such data may be transmitted over telephone lines or other separate communications paths. If functions such as these are provided using facilities separate from communication facility 36,  
10 some of the communications involving set-top boxes 44 may be made directly with the separate facilities.

Each user has a receiver, which is typically a set-top box such as set-top box 44, but which may be other suitable equipment into which circuitry similar  
15 to set-top-box circuitry has been integrated. Program guide data may be distributed to set-top boxes 44 periodically, continuously, or on demand. Communication facility 36 may also poll set-top boxes 44 periodically for certain information (e.g., pay  
20 program account information or information regarding programs that have been purchased and viewed using locally-generated authorization techniques). Main facility 32 preferably contains a processor to handle information communication tasks. Each set-top box 44  
25 preferably contains a processor to handle tasks associated with implementing a program guide application on the set-top box 44. Communication facility 36 may contain a processor for handling tasks associated with the distribution of program guide data  
30 and other information to user equipment 40. Communication facility may also contain a program guide server (or be associated with such a server located

remotely from the communication facility). This program guide server may provide data and other functionality on demand to the program guide implemented on the user equipment, in embodiments in which some program guide functionality is provided remotely.

Each set-top box 44 is typically connected to an optional videocassette recorder 46 or other suitable recording device so that selected television programs may be recorded. Each videocassette recorder 46 is connected to a television 48 or other suitable viewing device. To record a program, set-top box 44 tunes to a particular channel and sends control signals to videocassette recorder 46 (e.g., using an infrared transmitter) that direct videocassette recorder 46 to start and stop recording at the appropriate times.

Each set-top box 44 is may also be connected to an audio system 52 so that selected digital audio programs may be listened to at a higher quality than would be available using the television's built in audio system.

During use of the interactive program guide implemented on set-top box 44, program listings and other information may be displayed on television 48. Such program guide displays may be presented on top of a television program to which the user has tuned with set-top box 44 or may be presented in place of such a program or may be combined on the same screen as the television screen to which the user has tuned. Each set-top box 44, videocassette recorder 46, audio system 52 and television 48 may be controlled by one or more remote controls 50 or any other suitable user control

device such as a wireless keyboard, mouse, trackball, dedicated set of buttons, touch-screen display remote, etc. Remote controls such as remote control 50 have various buttons that may be pressed by the user such as

5 cursor keys (for on-screen movement of a highlight region, scrolling functions, etc.), an enter key (for making a selection), channel number keys (for selecting a channel), a favorites key (for flipping from one favorite channel to another), etc.

10 Of the wide range of programming available to users of modern cable and satellite systems, only a portion of which may be of interest at a particular time. In order to locate programming of interest, program listings data is associated with individual

15 programs and with each of the channels carrying the programs. The program guide may allow the user to search the program listings using keywords. For example, each program listing may be associated with program categories which identify the subject matter of

20 a program, or if applicable, of particular channels. Typical categories may include, e.g., sports, news, movies, etc. In addition to information concerning program content, information concerning the type of media of programs carried by the channels is an

25 additional, useful selection criteria. Many channels carry television media, as is well known. Newer available media, such as digital audio, video-on-demand, games, or data are carried by other channels. Viewing a particular media type is indicative of the

30 user's interest. For example, each media type may have visual displays and sound levels, as well as a required degree of user attention/interaction, that are

distinctive for that particular type of media. A games channel may have intense visual displays and high sounds levels and require active user attention and participation. In contrast, digital audio channels may  
5 typically have no visual content and require a low level of passive user attention. It may be confusing to the user to switch between media types during a viewing session. Consequently, the user may prefer to restrict viewing or searching to a single media type,  
10 particularly the media type currently being viewed.

In the interactive program guide, each of the channels carries programming of primarily one media type. Thus, there are television channels, digital audio channels, games channels, video-on-demand  
15 channels, data channels, etc. As will be described in greater detail below, the channels may be arranged in a random sequence, wherein channels carrying the different media types are distributed throughout the channel sequence. When the user is selecting channels,  
20 the interactive program guide may provide the option to the user to create a favorite channels list by the user designation of favorite channels. The preferred media type during a particular viewing may be ascertained from the user's selection of programming. The program  
25 guide may use information on user-designated favorite channels and the current preferred media type to sort the available channels. The program guide may then constrain access to channels to favorite channels of the preferred media type.

30 This process is illustrated in greater detail in FIG. 2. At step 100, program listings data is supplied to main facility 32 of FIG. 1 from one or more

data sources, such as data source 18 of FIG. 1. The program listings data may include channel information such as channel titles, descriptions, categories or genres, etc. At step 102, each channel listing is reviewed and media type information is added to the channel information. According to one embodiment, the step 102 may be performed at the main facility 32. This step may be performed by an operator after reviewing the channel information or other information.

10 This step may alternatively be automated by assigning media types based on key words appearing in the channel description in the program listings data. If desired, media type information may be assigned to the program listings prior to transmission of the program listings data from data source 18 (so that steps 100 and 102 would be combined.) The channel information may then be supplied to the program guide from the main facility 32, or a communications facility 36. Alternatively, compilation of channel information database may be performed by the program guide at the set-top or program guide server, wherein information of media type is assigned to each channel based on information from other sources.

Illustrative data structures of the type that may be used by the program guide system are shown in FIGS. 3(a)-3(c). For example, channels that broadcast television programs or movies on a predetermined broadcast schedule may be identified in the channel database as carrying a "television" or "video" media type. FIG. 3(a) shows an illustrative data structure 120a carrying a media type 122a, (e.g., television), for a channel 124a, (e.g., HBO). FIGS. 3(b) and 3(c)



show other illustrative data structures 120b and 120c identified as carrying digital audio media 122b and games media 122c, respectively. Other channels may carry video-on-demand media or data media, etc.

5           With continued reference to FIG. 2, the program guide may provide the user with the option of creating a favorites channel list at step 104. The favorite channels list may store channels designated as favorites in a single list, without regard to media  
10 type. At step 106, the preferred media type is ascertained by the program guide. As will be described in greater detail herein, the preferred media type may be a single media type or a subset consisting of a plurality of media types. Step 104 and step 106 are  
15 independent of one another. They may be performed concurrently or sequentially. For example, the user may create a list of favorite channels at step 104 during an initial viewing session. The list of favorite channels may then remain the same during  
20 subsequent viewing sessions. However, the preferred media type, determined at step 106, may change during each viewing session.

Step 108 allows the viewer to select channels from a constrained list of channels. More  
25 particularly, when the user exercises an option of selecting a channel, the program guide will access favorite channels that carry the preferred media type only. The user is provided with several options for selecting channels, as will be described in greater  
30 detail below. For example, the user may be provided with the option of viewing a abbreviated display of program listings wherein the program guide only

displays favorite channels carrying the preferred media type (FIG. 8). Alternatively, the user may be provided with the option of viewing a display of program listings on available channels. However, the user's ability to scroll through or access channels is constrained to favorite channels of the preferred media type (FIG. 10). According to another option, the user is provided with the option to flip among favorite channels of the preferred media type (FIG. 12). The program guide may also provide the user with the option to browse among favorite channels of the preferred media type (FIG. 14).

At step 104 of FIG. 2, the program guide may provide the user with the option of creating a favorite channels list. In a preferred embodiment, the user may access a favorite channels selection screen, such as screen 130, illustrated in FIG. 4. The favorite channels selection screen 130 may provide a channels list 132, with listings 134 for each channel available to the user. The listing 134 may display information about the channel, such as the channel number 136, the channel name 138, and the media type 140 associated with the channel. As described above, the channels may not necessarily be grouped according to media type. Cursor keys on the user remote may be used to highlight a particular channel listing 134. The FAV key on the user remote control may be pressed in order to select the highlighted channel as a favorite. The enter or OK key on the user remote may be pressed to exit the favorite channel selection screen 130. As a result of the favorite channel selection, each channel listing may include an additional identifier, for example, a

"favorite" designation, in addition to media type. Favorite designations may include any identifiers to let the user quickly recognize a favorite channel, and may include, for example, a caption stating "favorite" or "FAV" (see, FIG. 10). Alternatively, the channel number or call letters may be represented in a different color, as illustrated in FIG. 4 for a previously selected favorite channel 137 and channel name 139. As yet another alternative, the listing box 134 may be represented in a different color, etc. Thus, the channels listings data provides the program guide with a means to distinguish among different groups of channels, such as "favorite television channels," "favorite digital audio channels," or "favorite games channels," etc.

As illustrated in FIG. 5, the user may view the favorite channels selected hereinabove on a separate screen, such as favorite channels screen 142, wherein a favorite channels list 144 is displayed. It is understood that the above selection screens for designating and displaying favorite channels are represented as examples only. The designation of favorite channels may be made by other methods. For example, designation of a favorite channel may be made by depressing the FAV key on the remote control when the set top box is tuned to that channel or by selecting an on-screen menu option after choosing a channel.

At step 104 of FIG. 2, the preferred media type may be communicated to the program guide in several ways. According to a preferred embodiment, the preferred media type may be that of the current channel

selection. In FIG. 6, the media type of the channel currently being viewed is determined at step 150. The preferred media type is set to the media type of the channel currently being viewed at step 152. For  
5 example, the user may be currently watching a program on a television media channel. The preferred media type would therefore be television media. By designating a preferred media type based upon the media type of the current channel selection, the process of  
10 searching for additional programming may be simplified in several ways. First, the user is not required to affirmatively designate a preferred media type. Second, the process of accessing channels of a single media type may be less confusing because the user is  
15 already predisposed to view the particular media type, as described above. As an alternative, the preferred media type may be chosen based on some other action taken by the user, such as selecting a program guide feature related to the particular media type. For  
20 example, if the user selects a Music feature in the guide, then the guide may constrain channel changing to music channels, even if the user is not currently tuned to a music channel.

The program guide may filter the available  
25 channels by favorites as well as by media type. The resulting subset of channels narrows the available selections in a manner that is consistent with user interest. For example, the program guide may constrain the number of program listings that are presented to  
30 the user, regardless of what type of display format the user has chosen to view (e.g., a by-time listing format, a by-channel listing, etc.). At step 160, the

user may be provided with the option of displaying a selection list which displays only favorite channels of the preferred media type (FIG. 7). At step 162, the user may be provided with the option of displaying a  
5 selection list which displays available channels, but limits channel selection to favorite channels of the preferred media type. The program guide may also constrain the channels to which the user may tune. At step 164, the user may be provided with the option of  
10 flipping between favorite channels of the preferred media type. At step 166, the user may be provided with the option of browsing among favorite channels of the preferred media type.

FIG. 8 illustrates a channel selection screen  
15 170, which may be selected at step 160, above. In this by-time listing, program listings are displayed only from channels 172 that had been previously selected as favorite channels (e.g., in a process such as that described with respect to FIGS. 4-5). As illustrated  
20 in FIG. 9, the user requests a display of favorite channels of the preferred media type at step 180. The program guide advances to the next favorite channel (step 181), and determines if the media type associated with the favorite channel is the preferred media type  
25 (step 182), i.e., the media type of the channel currently being viewed. (The preferred media type is preferably queried (step 106) at the time the particular viewing option is selected.) If the favorite channel is of the preferred media type, it is  
30 added to the display list at step 184. Otherwise, the program guide advances to the next channel (step 181) and step 182 is repeated. Once the associated media

type of favorite channels have been checked against the preferred media type (step 188), the screen 170 displays favorite channels of preferred media type, in this case, television media (step 190).

- 5                   FIG. 10 illustrates a selection screen 192 wherein the program guide displays program listings for channels of available media types. Channel selection of any channel, regardless of favorite status or media type, is available from screen 192. For
- 10 example, channels may be selected by pressing the up or down buttons on the user remote. Similarly, if the user enters a channel number directly on screen 192 (or any of the channel selection screens) the guide will select the desired channel, regardless of the favorite
- 15 status or media type. However, for constrained searching of the favorite channels of the preferred media type, movement of the highlight region on the screen is also constrained to favorite channels that are of the preferred media type, e.g., television
- 20 media. The searching may be constrained by pressing a NEXT FAV or FAV+ or similar key to advance to the next higher numbered favorite channel of the matching media type. Similarly, the PREV FAV or FAV- or similar key will move to the next lower numbered favorite channel.
- 25 In such a case, channels 194a and 194b are not favorite channels and would be skipped over. Channels 196a and 196b are favorite channels but of a non-preferred media type, i.e., digital audio or games. Channels 198a, 198b, and 198c are favorite channels of the preferred
- 30 media type, i.e., television. Thus as shown in FIG. 11, when the next favorite channel of the preferred media type is requested (step 200), the program guide

advances to the next channel (step 201) and evaluates whether the next channel in the channel sequence is a favorite channel (step 202) and of the preferred media type (step 204). If so, the highlighted region as  
5 advanced (scrolls down) to the next channel (step 206). If the channel is not a favorite, or not of the preferred media type, the program guide advances to the next channel in the channel sequence (step 201) to repeat steps 202 and 204.

10           The channels to which the user may tune may also be constrained when the user is using special tuning features. For example, by selection the option at step 164, the program guide may provide a special "flip" tuning feature (see, FIG. 12). As shown in FIG.  
15 12, when the user invokes the flip mode, flip display 210 is displayed along with a channel 212 (i.e., channel 4) that the user is currently tuned to and is watching on display screen 214. In one embodiment, the flip display partially overlays the channel 212. In an  
20 alternative embodiment, the channel 212 is reduced in size to display on a portion of display screen 214. The flip display 210, and other information, may be displayed on the remaining portion of display screen 214. Flip display 210 contains information on programs  
25 216 appearing on channel 218. Channel 218 is the same channel (channel 4) as the channel 212 (channel 4) to which the set-top box 44 is currently tuned. The user may change channel 204, e.g., using channel up and down keys on the remote control, which also changes the  
30 channel 212. The channel up and down keys will allow the user to select the next higher or lower channel in the channel sequence. For constrained flipping of

favorite channels of the preferred media type, the user may use the NEXT FAV (or FAV+ or similar) button and the PREV FAV (or FAV- or similar) button on the user remote. As illustrated in FIG. 13, the user requests  
5 to tune the set top box 44 to the next favorite channel of the preferred media type (step 250). The program guide advances to the next favorite channel (step 252) and evaluates whether the channel is of the preferred type (step 254). If so, the set top box 44 tunes to  
10 that channel (step 256). If the next favorite channel is not of the preferred media type, the program guide advances to the next favorite channel (step 252).

As shown in FIG. 14, when the user invokes the browse mode at step 166, browse display 220 is  
15 displayed along with a channel 222 (i.e., channel 9) which the user is currently tuned to and is watching on display screen 224. In one embodiment, the browse display 220 partially overlays the channel 222. In an alternative embodiment, the channel 222 is reduced in  
20 size to display on a portion of display screen 224. The browse display 220, and other information, may be displayed on the remaining portion of display screen 224. Browse display 220 contains information on programs 226 appearing on different channels 228. The  
25 user may change channels 228 which are displayed on browse display 220 by using up and down cursor keys without changing channel 222. The up and down keys will allow the user to select the next higher or lower channel in the channel sequence for display in browse  
30 display 220. For constrained browsing of favorite channels of the preferred media type, the user may use the NEXT FAV (or FAV+ or similar) button and the PREV



FAV (or FAV- or similar) button on the user remote. Consequently, the channels 228 which the user may browse through are constrained to the channels 228 which are on the list of favorites and are of the preferred media type. As illustrated in FIG. 15, the user requests to view a program listing for the next favorite channel of the preferred media type (step 260). The program guide advances to the next favorite channel (step 262) and evaluates whether that channel is of the preferred media type (step 264). If so, that channel information is displayed on the browse display 220 (step 266). If the next favorite channel is not of the preferred media type, the program guide advances to the next favorite channel (step 262).

User preferences may be stored in a preference profile. Different preference profiles may be used by different users of the same program guide. Preference profiles are described in greater detail in U.S. patent application 09/034,934, incorporated by reference above. As illustrated in FIG. 16, the preference profile 300 may store the favorite channels list 144 of a user 302. When a particular user profile is invoked the favorite channels list would become available to the interactive program guide.

Information regarding the preferred media type is preferably obtain during the viewing session based on the channel currently being viewed by the user. The user would be provided with the option of selecting channels constrained to favorite channels of the preferred media type (step 108), as described with respect to FIG. 2, above. A second user may have the second user's preferences stored in a second user

profile, which may be accessed at any time in the viewing session.

In an alternative embodiment, a system is provided wherein the features described herein may be implemented on a user interface, such as a set-top box, rather than on a program guide. The set-top box may provide the user with the option of selecting a channel, and displaying each channel as selected. For example, user selection may be made by the up and down keys (or similar buttons) on the user remote. This would allow the user to select and display the next higher-numbered or lower-numbered channel. The set-top box may also provide the features of allowing the user to designate favorite channels and identifying and tuning to the next favorite channel on the channel list when the user selects the FAV key (or similar button) on the user remote.

According to this embodiment, the set-top box may be able to differentiate between channels of different media types. For example, the set-top box may be provided with media information along with other basic information such as channel number or channel name or channel call letters. The set-top box may be able to provide similar features to the user as those described above with respect to FIGS. 12-13. More particularly, if the user depresses the FAV key, the set-top box will tune to the next higher-numbered channel that is a favorite and that is of the preferred media. As described above, the preferred media type may be designated as the type of media that the user is currently viewing.

The foregoing is merely illustrative of the principles of this invention and various modifications can be made by those skilled in the art without departing from the scope and spirit of the invention.

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What is Claimed is:

1. An interactive program guide system in which an interactive program guide is implemented on user multi-media equipment of a user for displaying programming for a plurality of channels on the user equipment, wherein each channel carries primarily one of a plurality of media types, the interactive program guide system comprising:

means for supplying information on the media types that are associated with each of the channels;

means for providing the user with the option of designating favorite channels;

means for designating a preferred media type which reflects the user's interests; and

means for providing the user with the option of channel selection constrained to the favorite channels of the preferred media type.

2. The interactive program guide system defined in claim 1, wherein the means for designating the preferred media type comprises means for designating the preferred media type as the media type of the channel currently displayed on the user equipment.

3. The interactive program guide system defined in claim 1, wherein the means for designating the preferred media type comprises means for designating the preferred media type as the media type associated with a program guide feature selected by the a user.

4. The interactive program guide system defined in claim 1, further comprising:

means for supplying program listings data to the interactive program guide, wherein the means for providing the user with the option of channel selection constrained to the favorite channels of the preferred media type comprises means for displaying a selection list of program listings data wherein only program listings for favorite channels of the preferred media type are displayed.

5. The interactive program guide system defined in claim 1, further comprising:

means for supplying program listings data to the interactive program guide, wherein the means for providing the user with the option of channel selection constrained to the favorite channels of the preferred media type comprises means for displaying a selection list of program listings data wherein channel selection is from the selection list is constrained to favorite channels of the preferred media type.

6. The interactive program guide system defined in claim 1, wherein the means for providing the user with the option of channel selection constrained to the favorite channels of the preferred media type comprises means for displaying on the user equipment the next favorite channel of the preferred media type.

7. The interactive program guide system defined in claim 1, further comprising:

means for supplying program listings data to the interactive program guide, wherein the means for providing the user with the option of channel selection constrained to the favorite channels of the preferred media type comprises means for displaying a selected channel on the user equipment and means for displaying program listings data for a favorite channel of the preferred media type.

8. The interactive program guide system defined in claim 1, wherein the media type is selected from the group consisting of television media, digital audio media, games media, data media, and video-on-demand media.

9. The interactive program guide system defined in claim 1, wherein the media type is selected as a subset of the group consisting of television media, digital audio media, games media, data media, and video-on-demand media.

10. The interactive program guide system defined in claim 1, further comprising:

means for storing favorite channels of a user in a preference profile.

11. A system comprising:

multi-media equipment that receives a plurality of channels, wherein each channel carries primarily one of a plurality of media types;

a user control device with which the user issues a command when it is desired to access a channel; and

an interactive program guide configured to receive information on the media types that are associated with each of the channels, to provide the user with the option of designating favorite channels; to designate a preferred media type corresponding to the media type of channel to which the tuner is tuned; and to provide the user with the option of channel selection constrained to the favorite channels of the preferred media type.

12. The system defined in claim 11, wherein the interactive program guide is configured to receive program listings data and to display a selection list of program listings data wherein only program listings for favorite channels of the preferred media type are displayed on the multi-media equipment.

13. The system defined in claim 11, wherein the interactive program guide is configured to receive program listings data and to display a selection list of program listings data wherein channel selection from the selection list is constrained to favorite channels of the preferred media type.

14. The system defined in claim 11, wherein the interactive program guide is configured to display the next favorite channel of the preferred media type upon receiving the command from the user control device to select a channel.

15. The system defined in claim 11, wherein the program guide is configured to receive program listings data and to display a selected channel and a selection list of program listings data wherein program listings data of a favorite channel of the preferred media type on the multi-media equipment.

16. The system defined in claim 11, wherein the media type is selected from the group consisting of television media, digital audio media, games media, data media, and video-on-demand media.

17. The system defined in claim 11, wherein the media type is selected as a subset of the group consisting of television media, digital audio media, games media, data media, and video-on-demand media.

18. The system defined in claim 11, wherein the interactive program guide is configured to store favorite channels of a user in a preference profile.

19. A method for accessing channels in an interactive program guide system implemented on user multi-media equipment of a user for displaying programming on a plurality of user-selectable channels on the user equipment, wherein each channel carries primarily one of a plurality of media types, the method comprising:

supplying information on the media types that are associated with each of the channels;

providing the user with the option of designating of favorite channels;



designating a preferred media type which reflects the user's interests; and

providing the user with the option of selecting channels such that channel selection is constrained to favorite channels of the preferred media type.

20. The method defined in claim 19, wherein designating the preferred media type comprises designating the preferred media type as the media type of the currently displayed channel.

21. The method defined in claim 19, further comprising:

supplying program listings data to the interactive program guide, wherein providing the user with the option of selecting channels such that channel selection is constrained to favorite channels of the preferred media type comprises displaying a selection list of program listings data wherein only program listings for favorite channels of the preferred media type are displayed.

22. The method defined in claim 19, further comprising:

supplying program listings data to the interactive program guide, wherein providing the user with the option of selecting channels such that channel selection is constrained to favorite channels of the preferred media type comprises displaying a selection list of program listings data wherein channel selection

from the selection list is constrained to favorite channels of the preferred media type.

23. The method defined in claim 19, wherein providing the user with the option of selecting channels such that channel selection is constrained to favorite channels of the preferred media type comprises displaying on the user equipment the next favorite channel of the preferred media type.

24. The method defined in claim 19, further comprising:

supplying program listings data to the interactive program guide, wherein providing the user with the option of selecting channels such that channel selection is constrained to favorite channels of the preferred media type comprises displaying a selected channel on the user equipment and displaying program listings data for a favorite channel of the preferred media type.

25. The method defined in claim 19, wherein the media type is selected from the group consisting of television media, digital audio media, games media, data media, and video-on-demand media.

26. The method defined in claim 19, wherein the media type is selected as a subset of the group consisting of television media, digital audio media, games media, data media, and video-on-demand media.

27. The method defined in claim 19, further comprising:

storing favorite channels of a user in a preference profile.

28. A method for accessing channels in an interface implemented on user multi-media equipment of a user for displaying programming on a plurality of user-selectable channels on the user equipment, wherein each channel carries primarily one of a plurality of media types, the method comprising:

identifying the media types that are associated with each of the channels;

identifying user-designated favorite channels;

designating a preferred media type which reflects the user's interests; and

providing the user with the option of selecting channels such that channel selection is constrained to favorite channels of the preferred media type.

Abstract of the Disclosure

5 An interactive program guide system is provided in which an interactive program guide is implemented on user multi-media equipment of a user for displaying programming for a plurality of channels on the user equipment, wherein each channel carries primarily one of a plurality of media types. In the interactive program guide system, program listings data and information on the media types that are associated with each of the channels is supplied to the  
10 interactive program guide. The program guide system provides for designating a preferred media type which reflects the user's interests. The program guide system provides the user with the option of designating  
15 favorite channels, and with the option of channel selection, while constraining channel selection to the favorite channels of the preferred media type. The user is provided with the option of displaying program listings, tuning to channels, or browsing among  
20 channels, constrained to favorite channels of the preferred media type.

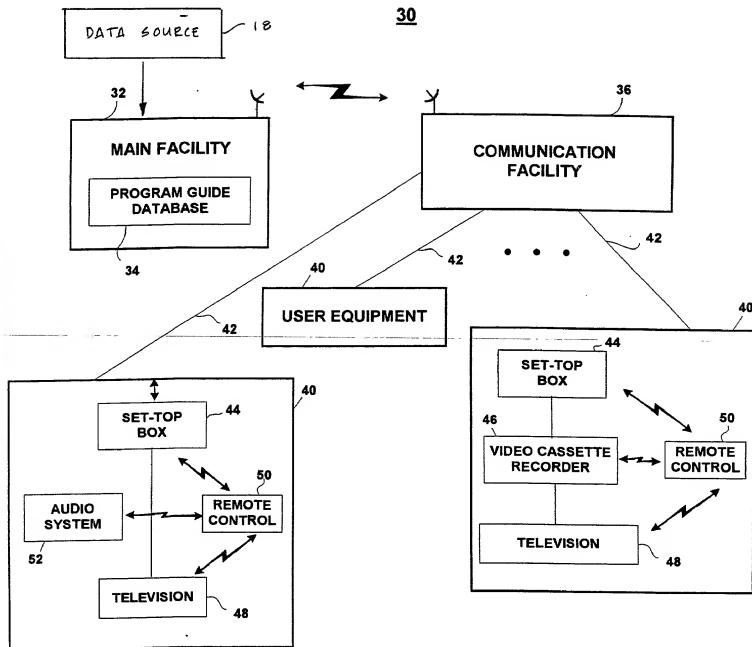
UV-100  
1/n

FIG. 1

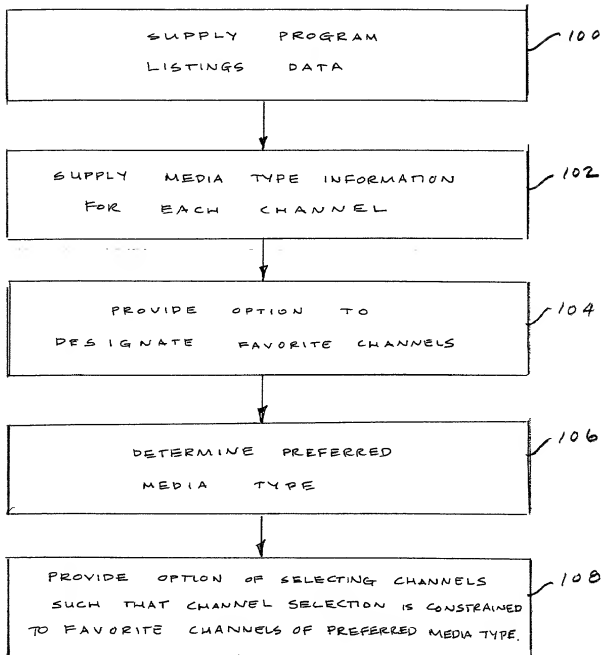


FIG. 2

| CHANNEL LISTING |      |            |
|-----------------|------|------------|
| CH              | NAME | MEDIA      |
| 108             | HBO  | TELEVISION |

120a

124a

122a

FIG. 3(a)

| CHANNEL LISTING |      |               |
|-----------------|------|---------------|
| CH              | NAME | MEDIA         |
| 251             | JAZZ | DIGITAL AUDIO |

120b

124b

122b

FIG. 3(b)

| CHANNEL LISTING |        |       |
|-----------------|--------|-------|
| CH              | NAME   | MEDIA |
| 303             | PALMAN | GAME  |

120c

124c

122c

FIG. 3(c)

10375501.001700

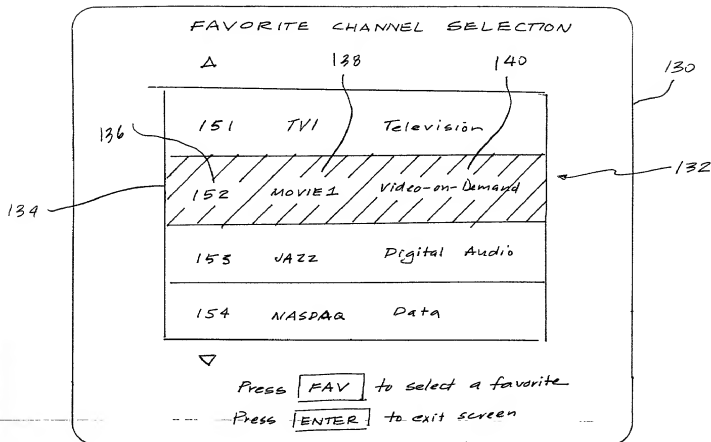


FIG. 4

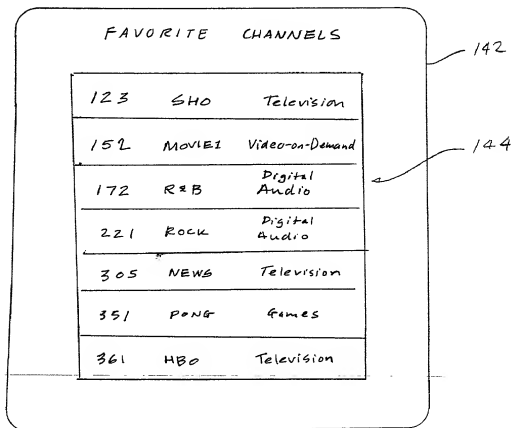


FIG. 5



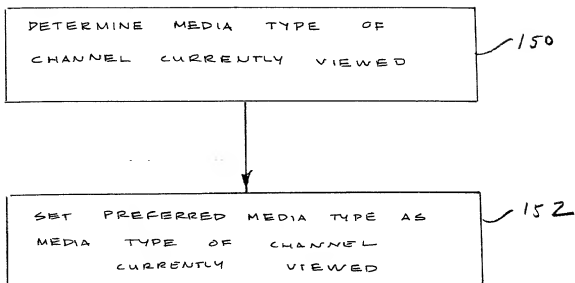


FIG. 6

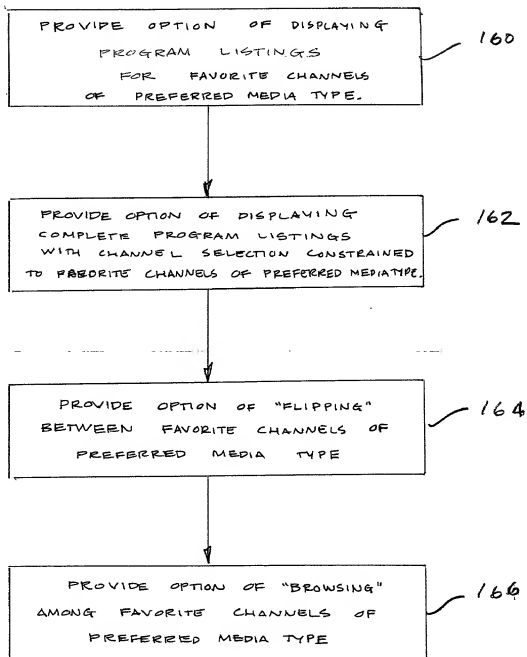
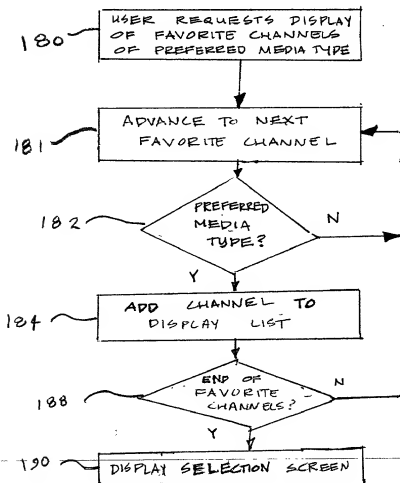


FIG. 7



FIG. 9



192

△

| CH  |                       | 8:00             | 8:30         |
|-----|-----------------------|------------------|--------------|
| 151 | FAV.<br>TV            | PANTE'S PEAK     |              |
| 152 | FAV.<br>DIG.<br>AUDIO | BEETLES          |              |
| 53  | TV                    | EDWARD THE GREAT |              |
| 54  | FAV.<br>GAME          | NINTENDO         |              |
| 55  | VIR.<br>ON<br>DEMAND  | STAR<br>WARS     | STAR<br>WARS |
| 56  | FAV.<br>TV            | NEWS             |              |
| 57  | FAV.<br>TV            | HR               |              |

▽

198a

196a

194a

196b

194b

198b

198c

FIG. 10

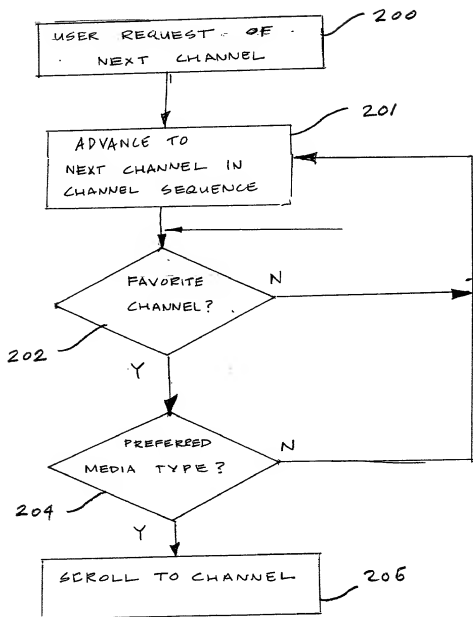


FIG. 11

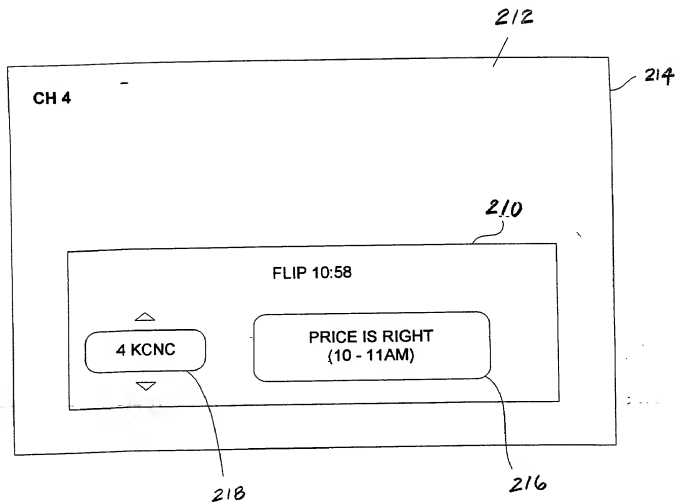


FIG. 12

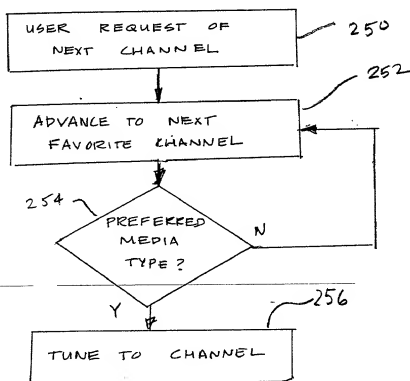


FIG. 13

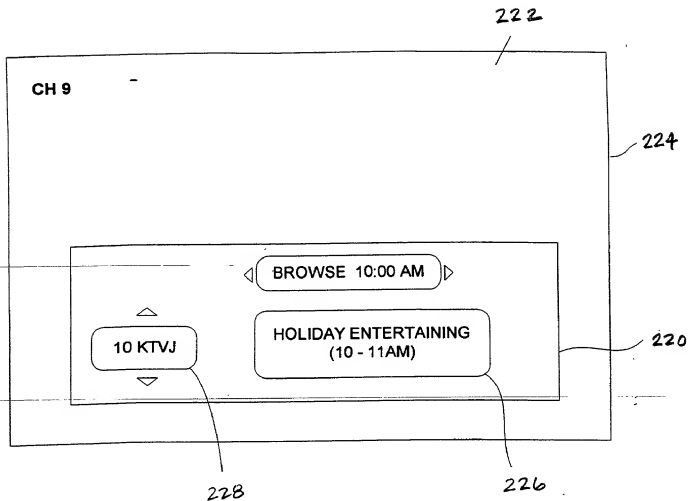


FIG. 14

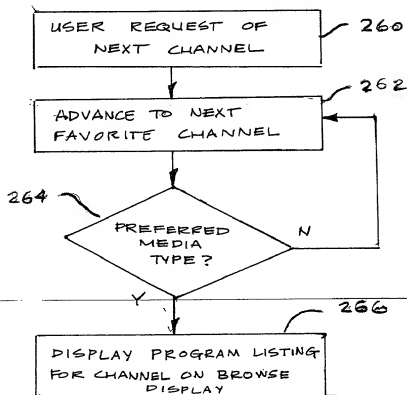
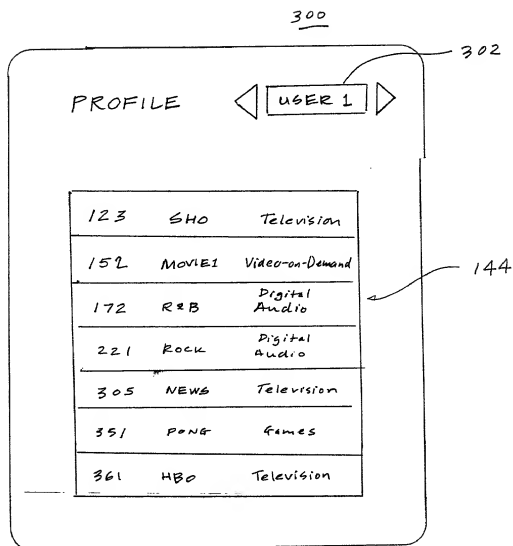


FIG. 15





- 1 -

UV-100

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am an original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

APPARATUS AND METHODS FOR CONSTRAINED SELECTION OF  
FAVORITE CHANNELS

the specification of which

[X] is attached hereto

[ ] was filed on \_\_\_\_\_  
as Application Serial No. \_\_\_\_\_.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims.

I do not know and do not believe that the invention was ever patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application.

I do not know and do not believe that the invention was in public use or on sale in the United States of America more than one year prior to this application.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known by me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority  
Claimed

|          |           |               |        |
|----------|-----------|---------------|--------|
|          |           | [ ] [ ]       |        |
| (Number) | (Country) | (Filing Date) | Yes No |

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

60/097,507      August 21, 1998  
(Application Serial No.) (Filing Date)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known by me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

|                             |               |  |
|-----------------------------|---------------|--|
| (Application<br>Serial No.) | (Filing Date) | (Status) (patented,<br>pending, abandoned) |
|-----------------------------|---------------|--|

As a named inventor, I hereby appoint the following attorneys or agents to prosecute this application and transact all business in the United States Patent and Trademark Office connected therewith:

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first inventor Edward B. Knudson

First Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

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